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2,232,619

BOTTLE DISPENSER

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3 Sheets-Sheet 1

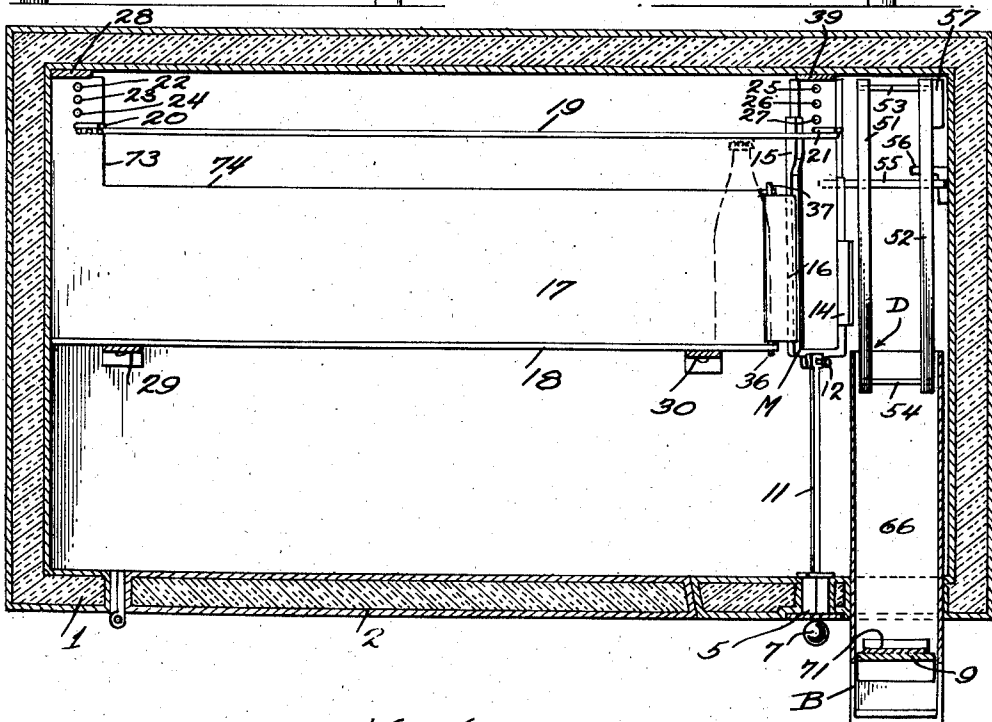
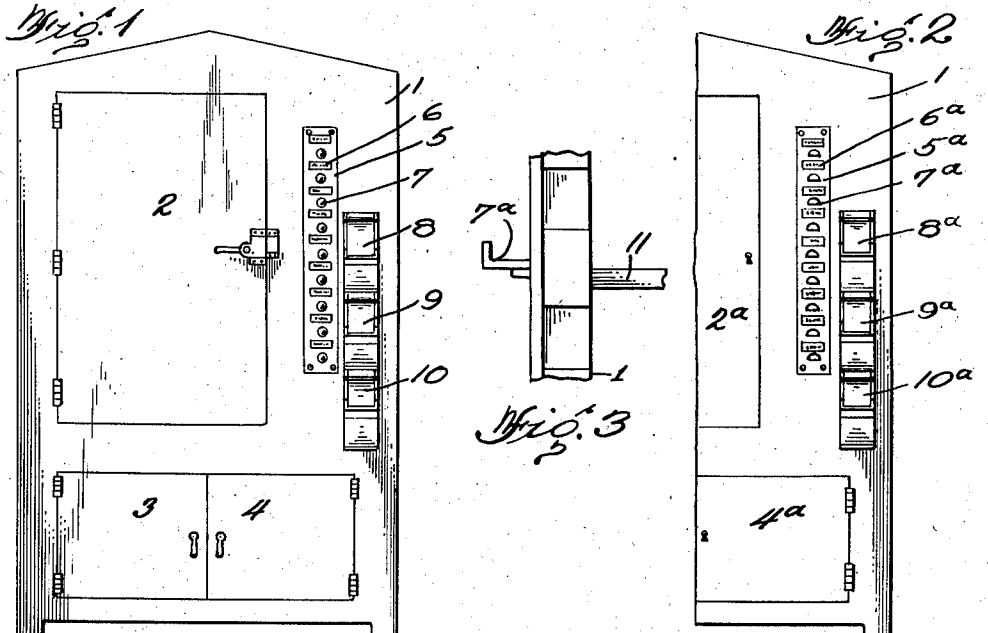


Fig. 4

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3 Sheets-Sheet 2

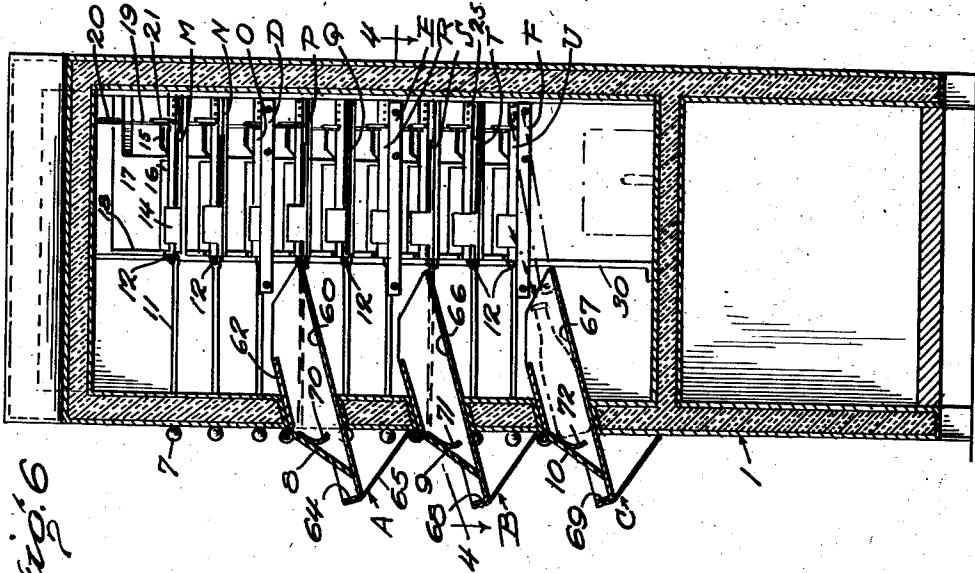


Fig. 6

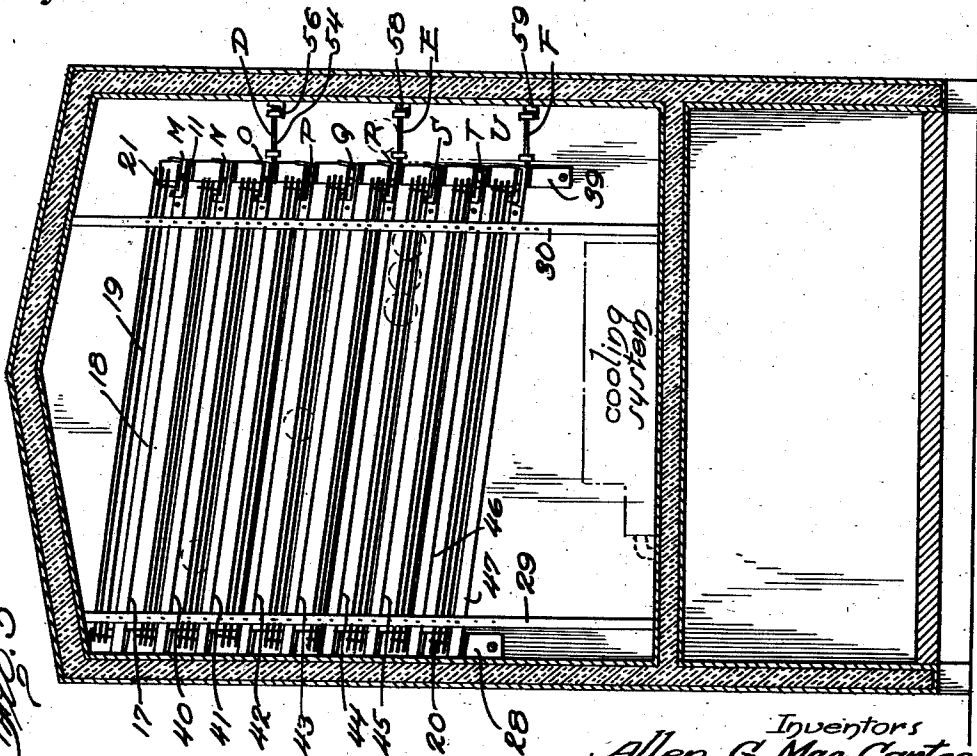


Fig. 5

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# UNITED STATES PATENT OFFICE

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## BOTTLE DISPENSER

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16 Claims. (Cl. 312—36)

This invention, relating as indicated to a bottle dispenser, is more particularly directed to a means for storing bottles containing soft drinks, beer and the like, so that the same can be readily dispensed.

It is one object of the invention to provide a dispensing apparatus which will efficiently dispense bottles from the pint size down, regardless of the diameter and length of such bottles.

It is a further object of the invention to provide means for dispensing selectively, that is, where the dispenser contains different soft drinks, for example, any one of nine brands or flavors may be chosen.

It will be noted that by simple modification larger bottles can be dispensed and more than nine flavors may be dispensed.

One object of the invention is to provide a dispensing apparatus which is foolproof in that it cannot get out of order.

A further object of the invention is to eliminate all springs and other parts that may wear during usage.

A more detailed object of the invention is to provide inclined runways which discharge upon horizontally reciprocating slide members which in turn permits bottles to be withdrawn from a series of bottles on the runways. One bottle at a time is withdrawn and falls or rolls upon a normally horizontal pivoted plate or cradle which is actuated by the weight of the bottle and deposits the bottle upon an inclined chute. At the end of the chute a stop is provided so that the customer or clerk may readily grasp the bottle.

In connection with the foregoing object it will be noted that we have reduced the number of parts to a minimum by using one pivoted cradle in conjunction with three or more runways.

It is also an object of the invention to provide interchangeable means so that the apparatus can be operated by coin control in one instance and manually in another.

As the description proceeds, it will be seen that there is nothing to wear out and that no parts will need replacing, thus eliminating the heretofore very troublesome factor of servicing.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims; the annexed drawings and the following description setting forth in detail certain mechanism constituting, however, but one of various applications of the principles of our invention.

In the accompanying drawings—

Figure 1 is a front elevation showing the manually operated control panel.

Figure 2 is a partial front elevation showing the coin operated control panel.

Figure 3 is a detail view of a portion of the coin control.

Figure 4 is a horizontal section taken on line 4—4 of Figure 6.

Figure 5 is a vertical section taken substantially centrally of Figure 6.

Figure 6 is a vertical section taken at right angles to Figure 5.

Figure 7 is a detail view.

Figure 8 is a perspective view of the slide and pivoted plate or cradle.

Figure 9 is a perspective view of the chute.

Figure 10 is a perspective view of the small door at the outer end of the chute.

Referring now to the drawings and more particularly to Figure 1, it will be seen that we have provided a cabinet 1, somewhat similar to a conventional refrigerator cabinet and being provided with a door 2 which gives access to the bottle storing compartment. Doors 3 and 4 are provided for access to the refrigerating mechanism.

A panel 5 is removably seated in the outer front wall of the cabinet 1 and this panel has a series of name plates 6 to indicate the brand or flavor of beverage which may be obtained by pulling one of the ball handles 7 immediately below such name plate. Either door 8, 9 or 10 is pushed outwardly by the bottle as it emerges from the cabinet and the bottle is in position to be grasped by the hand of the person operating the machine.

In Figure 2 a coin control panel 5<sup>a</sup> is used, this being somewhat similar to the panel 5 of Figure 1 and having names plates 6<sup>a</sup> and a series of coin receiving members 7<sup>a</sup>. The particular structure of the coin control is not illustrated in Figure 3 because it forms no part of this invention. Coin control devices are available on the open market and any preferred type may be used if it provides means for receiving a coin to release the slide rod 11 so that it may be drawn to the left as viewed in Figure 3 for a purpose to be described more fully hereinafter.

The cabinet 1 of Figure 2 is provided with locked doors 2<sup>a</sup> and 4<sup>a</sup> since this cabinet is a vending machine and not under the immediate supervision of a clerk or dealer in beverages. This cabinet is provided with doors 8<sup>a</sup> and 9<sup>a</sup>

and 10<sup>a</sup> exactly similar to the doors 8, 9 and 10 of Figure 1.

The exceptions noted above constitute the only major differences between the manually controlled device and the coin controlled device.

Referring now to Figure 4 it will be seen that we have provided an inclined runway or shelf 17 which slopes downwardly from left to right as shown in such figure. The outer edge of the runway 17 is provided with an upwardly extending lip or flange 18 which is adapted to engage the bottom or butt of bottles which are horizontally alined on the runways. A guard rail 19 is provided as shown in Figures 4 and 5, this rail being supported at its ends upon small posts 20 and 21. The rail may consist of two or more longitudinally extending members similar to the member 19 in order to engage various size bottles. The guard rail is adjustable longitudinally or axially of the bottles on the runways to receive various lengths of bottles. The post 20 is adapted to be received in any of the holes 22, 23 and 24 and similarly the post 21 is adapted to be received in any of the holes 25, 26 and 27. It will be seen that by simple manipulation the guard rail may be angularly positioned so as to converge toward the right as viewed in Figure 4. For example, post 20 may be inserted in hole 22 and post 21 retained as shown.

At the lower end of the runway a pivoted or hinged plate 16 is provided, this plate normally extending in alinement with the runway 17 as shown in full lines in Figure 7. Plate 16 is provided with pins 36 and 37 whereby it is hingedly mounted and at its inner end the under surface is made in the form of a cam surface 33<sup>a</sup>. The runways 17 and 40 to 47, inclusive, are supported at their forward portions by means of uprights 29 and 30, and at their rear portions by means of brackets 28 and 39. It is obvious that the number of runways can be increased to any number depending upon the size of the cabinet 1.

The slide member M is generally U-shaped as shown in detail in Figure 8 and comprises a long leg 31 and a short leg 32 with a connecting portion. The short leg 32 has an upwardly extending stop lug 14 and the long leg has an upwardly extending portion 15, this latter portion having a cam surface 33 adapted to engage cam surface 33<sup>a</sup> and an upper horizontally extending surface 34.

It will be seen that as the slide M moves outwardly the cam surface 33 engages the cam surface 33<sup>a</sup> on hinged plate 16 forcing it upwardly so as to engage a bottle. This stops the series of bottles from moving but as the slide proceeds the stop lug 14 slides outwardly and away from the bottle immediately above the slide thus permitting such bottle to move to the right as viewed in Figure 7. The slide M is actuated by means of a pull rod 41 which is connected to the slide by means of pin 12 engaging an aperture in one end of the pull rod and the aperture 35 in one end of the slide. The pin 12 loosely fits into both apertures inasmuch as the slide M is disposed in a plane extending in an acute angle with respect to a true horizontal plane, and the pull rod moves in a horizontal plane.

It will be noted that each of the various runways is provided with a cooperating slide, these being lettered M, N, O, P, Q, R, S, T and U. A cradle member is provided, this being generally rectangular in shape as shown in Figure 4. One cradle member such as the member D, for example, is designed to serve three runways and

there are three of such cradles D, E and F. The cradle member D shown in Figure 4 consists of two longitudinally extending bars 51 and 52, connected at their opposite ends by means of cross pieces 53 and 54. This generally rectangular member is mounted upon pivot member 55, the pivot being located off center. A weight 57 is attached at the rear end of the cradle member which causes the cradle to assume a horizontal position in abutment with the stop 56. The stop 56 is attached to an interior wall of the cabinet 1 as shown in Figure 7 and when a bottle is received in the cradle its weight is sufficient to overcome the counterbalance 57, causing the cradle to rotate downwardly and to discharge the bottle into one of the three chutes. The chutes A, B and C, shown in Figure 6 and in detail in Figure 9, are all of similar construction, one being provided for each pivoted cradle member.

It will be noted that one runway has been described as well as one slide member and one cradle member and the same procedure will be followed with respect to the chutes.

Chute A, for example, comprises a receiving surface 60 along which the bottle is adapted to slide. Vertical portions 61 and 63 extend upwardly from the bottom 60 and are connected by the cross piece 62. A stop portion 64 is provided and this is adapted to engage the bottom of a bottle. An angular piece 65 is adapted to be secured to the outside surface of the stop 64 as shown in Figure 9 this piece contacting the outer wall of the cabinet and serving as a support as shown in Fig. 6.

Three doors are provided 8, 9 and 10, each of these having the respective bumper members 70, 71 and 72. A bumper member is adapted to engage the central portion of the bottom of a bottle and as the bottle moves downwardly the door will be forced upwardly. The bumper projects the door a slight distance above the bottle so that the same may be easily grasped.

#### Operation

The operation of the device may be briefly described as follows:

A number of bottles are deposited on each of the runways and after these bottles are sufficiently cooled the apparatus is ready to function. At the time the bottles are placed on the runways they will extend from the stop member 14 on slide M to a point adjacent the upright 29 (see Figure 4). The ball handle 7 is grasped and an outward pull is exerted which causes the slide M to move outwardly. This permits the bottle immediately over the slide to roll to the right as viewed in Figures 5 and 7 and to fall downwardly or roll upon the cradle D. The weight of the bottle causes the cradle D to rotate in a counterclockwise direction as viewed in Figure 6, whereupon the bottle slides downwardly onto the surface 60 of chute A. The bottle then proceeds to engage bumper 70 forcing door 8 upwardly and finally coming to rest against stop 64. The bottle may then be easily grasped and withdrawn from the chute.

It is to be noted that as the slide M is drawn outwardly the cam member 15 engages the hinge plate 16 and forces it upwardly so as to engage a bottle and hold the series of bottles in the same position that they were in at the beginning of the operation. When the slide M is pushed backwardly the hinged plate 16 descends due to the weight of the remaining bottles and gravity, then the remaining bottles roll to the right as viewed

in Figure 4 and come to rest against stop lug 14. The device is then ready to have the cycle of operations repeated.

It will be seen that my apparatus may be employed as a coin operated or manually operated device merely by interchanging panels 5 and 5<sup>a</sup> and the connections to the pull rods 11. It will also be noted that any size bottle can be accommodated from a pint size to the smallest bottle now on the market. This is due to the width of the reciprocating slide M and the width of the hinged plate 16 coupled with the location of the pivot point of the hinged plate. For example, in actual practice we can rapidly dispense Coca-Cola bottles which are 2 $\frac{3}{8}$ " in diameter and approximately 7 $\frac{1}{2}$ " long. We can also dispense Seven Up and Orange Crush, these bottles being 2 $\frac{1}{8}$ " in diameter and about 7 $\frac{1}{4}$ " long. In addition, we can dispense conventional beer bottles as well as other twelve ounce bottles such as Pepsi-Cola and R. C. Cola which are approximately 2 $\frac{5}{8}$ " in diameter and 9 $\frac{3}{4}$ " long.

Thus it will be seen that the apparatus will effectively dispense bottles of practically any size without making any changes in the mechanism. It will also be seen that no springs are employed and that none of the parts will wear to such an extent as to become inoperative.

In addition, it will be noted that bottles of any conventional length may be effectively dispensed.

Lastly, it will be seen that a great deal of time can be saved since it is merely necessary to pull one designated lever, whereas in the prior art it has been necessary to grope around in a box of stagnant and unsanitary water.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the means and the steps herein disclosed, provided those stated by any of the following claims or their equivalent be employed.

We therefore particularly point out and distinctly claim as our invention:

1. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles with their axes parallel, a hinged plate mounted at the lower end of said runway, said plate lying in the same plane as said runway in one position and lying at an angle to said runway in a second position, a slide mounted adjacent the free end of said hinged plate and means on said slide to move said hinged plate upwardly from said first position to said second position.

2. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles, a hinged plate at the lower end of said runway, a slide adjacent said hinged plate, a pivoted cradle member adjacent said slide, and means on said slide to elevate said hinged plate against one of said bottles, said hinged plate normally lying in the plane of said runway and overlying said slide.

3. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles, a hinged plate at the lower end of said runway, a slide adjacent said hinged plate, a pivoted cradle member adjacent said slide, and means on said slide to prevent movement of said bottles when said slide is in a predetermined position, said hinged plate normally lying in the plane of said runway and overlying said slide.

4. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles, a hinged plate at the lower end of said runway, a slide adjacent said hinged plate, a pivoted cradle member adjacent said slide, and means on said slide to prevent movement of said bottles when said slide is in a predetermined position, said means being inactive when said slide is in another position thus permitting one of said bottles to move onto said cradle member, said hinged plate normally lying in the plane of said runway and overlying said slide.

5. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles, a hinged plate at the lower end of said runway, a slide adjacent said hinged plate, a pivoted cradle member adjacent said slide, said cradle member being actuated about its pivot by the weight of one of said bottles, and means present to cause of said bottles to progressively move from said runway to said slide and then to said cradle.

6. In apparatus of the character described, sloping means for holding a number of bottles in series, means for removing the bottle at the extreme lower end from such series of bottles comprising a hinged plate and a slide, said hinged plate overlying a part of said slide, means on said slide to cause said hinged plate to rise and contact the second bottle in said series when said slide is withdrawn.

7. In apparatus of the character described, sloping means for holding a number of bottles in series, means for removing the bottle at the extreme lower end from such series of bottles comprising a hinged plate and a slide, said hinged plate overlying a part of said slide, means on said slide to cause said hinged plate to rise and contact the second bottle in said series when said slide is withdrawn, said means comprising an upstanding cam member.

8. In apparatus of the character described, a slide comprising a generally U-shaped member having substantially parallel legs and a connecting portion, a cam member on one of said legs and a stop lug on the other, the cam member being located substantially at the free end of said one leg and the stop member being located intermediate the ends of said other leg.

9. In apparatus of the character described, a slide comprising a generally U-shaped member having substantially parallel legs and a connecting portion, a cam member on one of said legs and a stop lug on the other, and means on the connecting portion for connecting said slide to a pull rod.

10. In a refrigerated cabinet, a series of sloping runways each adapted to receive a series of bottles and an opening in a wall of said cabinet normally closed by a door in said cabinet, said bottles being adapted to pass through said opening, means for selectively engaging a bottle from any one of said runways and causing it to pass through said opening, said means including a pivoted cradle beneath the lower end of said selected runway.

11. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles, a hinged plate at the lower end of said runway, a slide adjacent said hinged plate, a pivoted cradle member adjacent said slide and a discharge chute aligned with said cradle, said runway being provided with an adjustable guard rail whereby bottles of various

lengths may be accommodated, said slide being located between said hinged plate and said cradle member.

5 12. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles, a hinged plate at the lower end of said runway, a slide adjacent said hinged plate, a pivoted cradle member adjacent said slide and a discharge chute alined with said cradle, said slide being reciprocable in a direction at right angles to the longitudinal axis of said runway and being located between said hinged plate and said cradle member.

10 13. In apparatus of the character described, the combination of a sloping runway adapted to receive a number of bottles, a hinged plate at the lower end of said runway, a slide adjacent said hinged plate, a pivoted cradle member adjacent said slide and a discharge chute alined with said cradle, said slide being reciprocable in a direction at right angles to the longitudinal axis of said runway, and being located in a plane extending at an acute angle with respect to a true horizontal plane and alined in the plane of said runway, said slide being located between said hinged plate and said cradle member.

15 14. In apparatus of the character described, a sloping runway and a hinged plate lying at the lower end of said runway, said plate having an

upper surface normally lying in the plane of said runway and having its free end away from said runway, there being means present to move said plate upwardly whereupon the upper surface thereof acts as a stop member.

5 15. In apparatus of the character described, a sloping runway and a hinged plate lying at the lower end of said runway, said plate having an upper surface normally lying in the plane of said runway and being movable upwardly, out of said plane to act as a stop member, and also having a lower cam surface, there being means present to engage said lower cam surface and thus move said hinged plate.

10 16. In apparatus of the character described, a sloping runway and a hinged plate lying at the lower end of said runway, said plate having an upper surface normally lying in the plane of said runway, and being movable upwardly, out of said plane and also having a lower cam surface, said plate having a width permitting it to be raised between bottles of several different diameters to prevent movement of said bottles located upon said runway, there being means present to engage said lower cam surface and thus move said hinged plate.

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